

PROCEEDINGS OF THE NEW YORK ENTOMOLOGICAL SOCIETY

MEETING OF OCTOBER 6, 1942

A regular meeting of the New York Entomological Society was held on October 6, 1942, in the American Museum of Natural History; President Weiss in the chair; nineteen members and visitors present.

Dr. Charles D. Michener and Mr. G. C. Furness were proposed for membership.

There were reports of summer experiences by the members and visitors present. On the whole little insect collecting had been done, due mainly to war activities and transportation difficulties.

MEETING OF OCTOBER 20, 1942

A regular meeting of the New York Entomological Society was held on October 20, 1942, in the American Museum of Natural History; President Weiss in the chair; 18 members and visitors present.

Dr. Charles D. Michener of the American Museum of Natural History, and Mr. G. C. Furness of the National Carbide Co., were elected members of the Society.

It was announced that Dr. L. O. Howard, Honorary Member of the Society, was to be in New York this winter.

Dr. H. T. Spieth presented a paper on the "Application of Some Statistical Methods to the Systematics of *Stenonema*," showing how frequency distributions, means, and standard deviations can help in the interpretation of some taxonomic problems of mayflies.

MEETING OF NOVEMBER 17, 1942

A regular meeting of the New York Entomological Society was held on November 17, 1942, in the American Museum of Natural History; President Weiss in the chair; thirty-nine members and visitors present.

After a discussion of whether to hold one or two meetings a month in 1943, it was decided by a vote to continue meeting twice a month.

Mr. Weiss read a letter from the Science Press announcing an increase of five per cent in the cost of printing the JOURNAL for next year.

It was announced that the meetings of the Eastern Branch, American Association of Economic Entomologists would be held in New York on November 19 and 20.

Dr. T. C. Schneirla told of a field study of an "instinct" problem: the migration and raiding in army ants as observed by him on Barro Colorado Island. Abstract appended.

THE ARMY ANT BEHAVIOR PATTERN

The unique behavior pattern of ants in the subfamily *Dorylinae* involves daily predatory expeditions and periodic migrations to a new nesting site or bivouac. In the American genus *Eciton*, through more than 200 known species and sub-specific groups, there are wide variations in behavior from the terrestrial raids and bivouacs of *Eciton s. str.* species to the almost exclusively hypogæic activities and nesting of *Labidus* species such as *E. cæum*. The former genus is best known in most respects. Its colonies number more than 40,000 workers, stably polymorphic with the frequency skewed toward the smaller sizes. The intermediate workers are most prominent in the actual raiding. In *E. hamatum* and *E. burchelli* the raids are light-aroused in the early morning and develop through the day, generally expanding to a distance of more than 200-300 yards from the bivouac. When the raids are large and well-developed (*e.g.*, a condition marked in *E. hamatum* by 2-3 principal trail systems), the activities of the day terminate in a migratory movement which carries the entire colony over one of its principal raiding trails to a new bivouac site somewhere on the margin of the raided zone. Thus a migration does not occur haphazardly, but ends a day of raiding. However, in the rainy season these species exhibit a regular cyclic routine of activities. In *E. hamatum*, for instance, maximal raiding and daily migration occurs daily in a given colony for about 18 days (nomadic period), then during the following period of about 18 days the colony remains bivouacked in the same spot with its daily raids much less developed (statory period). This is also the case for the swarm-raiding species *E. burchelli*, although the time relations of the nomadic-statory cycle are somewhat different in its case. The solution lies in the effect of a developing brood upon colony activity. Invariably, when a colony is found in the nomadic period, it proves to have a brood which is going through the larval stage, increasing in "mass activity" and voraciousness as it develops. This suggests that larval activity stimulates the workers tactually and chemically and greatly increases "social stimulation," indirectly accounting for highly developed raids which reach the point of complexity at which migration must occur. The stimulative effect of the larvæ upon workers is readily established in laboratory tests and observations; the direct relationship between maximal raids and migration has been worked out as a special problem. A critical control is the fact that in scores of observed cases, without exception, colonies have been found to cease the daily migrations and become statory at the point when their brood terminates its larval period and becomes enclosed in cocoons. The pace-maker of the entire behavior pattern is the *Eciton* queen (diehthadiigyne), whose physiological properties permit her to lay huge batches of eggs at regular intervals (*ca.* 36 days in the *Eciton s. str.* species). It is highly important that each clutch of eggs is laid within a few days, so that the many thousand young develop nearly in pace with one another and hatch into further stages at about the same time. As a consequence the brood exerts a homogenous and summative effect upon the workers of the colony, and thereby indirectly influences the critical changes in the colony behavior pattern in an all-or-none manner. Hence the *Eciton* behavior pattern is a complex resultant of several biological factors contributed in diverse incidental ways by the various component classes of individuals in the colony, interacting with extrinsic factors (*e.g.*, light) contributed incidentally by the environmental situation.—T. C. SCHNEIRLA.

MEETING OF DECEMBER 1, 1942

The Fiftieth Anniversary meeting of the New York Entomological Society was held on December 1, 1942, in the American Museum of Natural History; President Weiss in the chair; 45 members and visitors present.

Pictures of past presidents, early account books and minutes of the first meetings of the Society were exhibited.

Mr. Teale read the minutes for the meeting held on Dec. 7, 1892.

Mr. Weiss read the list of past presidents of the Society, twelve out of the 26 were present:—presidents Bell, Bird, Curran, Davis, Groth, Kisliuk, Melander, Moore, Ruckes, Schwarz, Sherman, and Weiss.

As Editor of the JOURNAL, Mr. Weiss presented a paper on the biographies of former editors of the JOURNAL, and the members of the first publication committee; and he also gave statistics on fifty volumes of the JOURNAL.

Mrs. Bell and Mrs. Sherman were presented with "badges" as awards for faithful attendance at the meetings.

Mr. Weiss read a letter from our honorary member, Dr. L. O. Howard.

The list of those who have been members of the Society for twenty years or longer was read, and four of our "oldest" members spoke about the early days of the Society. Mr. Groth who was a member of the incorporation committee in 1893 told of meetings before the Society was organized. Mr. Bird stressed the accomplishments of the Society in fifty years, spoke of some of the early members, and concluded with some humorous comments on heredity. Mr. Davis told of former members about whom obituary notices had been published and the prominent place they had in the activities of the Society and in Entomology in general. Mr. Comstock spoke about the collections of insects that came to the Museum through Society members, and of the active part played by members of the Society in building up the Museum's collection from 300,000 specimens as reported by Beutenmüller in 1898 to its present size—approaching two million.

Mr. Furness and Dr. Michener, our "youngest" members, expressed their appreciation of being members of the Society that had played such a prominent part in Entomology.

MEETING OF DECEMBER 15, 1942

A regular meeting of the New York Entomological Society was held on December 15, 1942, in the American Museum of Natural History; President Weiss in the chair; 22 members and visitors present.

Dr. H. C. Hockett of Riverhead, New York, was proposed for membership. The by-laws were suspended and he was then elected a member of the Society.

Mr. Weiss appointed the following committee to nominate the officers of the Society for the year 1943: Mr. Schwarz, Chairman, Mr. Soraci and Dr. Michener.

Dr. Charles M. Wheeler of the Rockefeller Foundation Laboratory spoke on "The Ecology of Bubonic Plague in the Western United States."

After considerable discussion of the paper, the meeting adjourned at 9:30.

ANNETTE L. BACON, *Secretary.*